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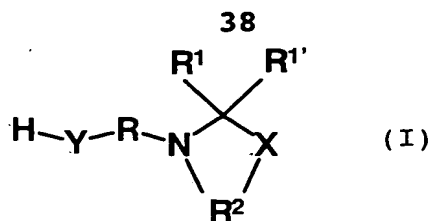
DT01 Rec'd PCT/PTC 25 FEB 2005

**THE FOLLOWING IS THE ENGLISH TRANSLATION OF THE  
AMENDMENTS TO THE CLAIMS OF THE INTERNATIONAL  
APPLICATION UNDER PCT ARTICLE 19:  
AMENDED SHEETS (Pages 36-38b)**

## Amended claims

1. A polyurethane (A) comprising as synthesis components
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- a) at least one organic diisocyanate or polyisocyanate,
  - 10 b) at least one compound containing at least one isocyanate-reactive group and at least one free-radically polymerizable unsaturated group and/or cationically polymerizable group,
  - 15 c) at least one compound containing at least one isocyanate-reactive group and at least one capped amino group and having a molecular weight below 1000 g/mol,
  - 20 d) if desired, at least one compound containing at least one isocyanate-reactive group and at least one actively dispersing group,
  - 25 e) if desired, at least one compound containing at least two isocyanate-reactive groups, and
  - f) if desired, compounds other than a) to d) containing at least one isocyanate-reactive group, the allophanate fraction being 5 to 65 mol% based on the lowest molecular weight allophanate molecule.
- 30 2. A polyurethane (A) comprising as synthesis components
- a) at least one organic diisocyanate or polyisocyanate,
  - 35 b) at least one compound containing at least one isocyanate-reactive group and at least one free-radically polymerizable unsaturated group and/or cationically polymerizable group,
  - 40 c) at least one compound containing at least one isocyanate-reactive group and at least one capped amino group and having a molecular weight below 1000 g/mol,
  - 45 d) 1-30 mol% of at least one compound containing at least one isocyanate-reactive group and at least one actively dispersing group,

- e) if desired, at least one compound containing at least two isocyanate-reactive groups, and
  - f) if desired, compounds other than a) to d) containing at least one isocyanate-reactive group.
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3. A polyurethane (A) comprising as synthesis components
- a) at least one organic diisocyanate or polyisocyanate,
  - b) at least one compound containing at least one isocyanate-reactive group and at least one free-radically polymerizable unsaturated group and/or cationically polymerizable group,
  - c) at least one compound containing at least one isocyanate-reactive group and at least one capped amino group and having a molecular weight below 1000 g/mol,
  - d) if desired, at least one compound containing at least one isocyanate-reactive group and at least one actively dispersing group,
  - e) no compound containing at least two isocyanate-reactive groups, and
  - f) if desired, compounds other than a) to d) containing at least one isocyanate-reactive group.
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- 30 4. The polyurethane (A) according to any of claims 1 to 3, wherein synthesis component c) has a molecular weight below 750 g/mol.
- 35 5. The polyurethane according to any one of the preceding claims, comprising per 100 g of compound at least 0.01 mol of unsaturated free-radically or cationically polymerizable groups and/or at least 0.01 mol of capped amino groups.
- 40 6. The polyurethane according to any one of the preceding claims, wherein capped amino group is selected from the group consisting of open-chain amins, cyclic amins, ketimines, aldimines, N,O-acetals, N,O-ketals, carboxamides, sulfonamides, and amidines.
- 45 7. The polyurethane according to any one of the preceding claims, wherein component c) has the formula (I),



where

R and R<sup>2</sup> independently are each a divalent organic aliphatic, cycloaliphatic or aromatic radical containing 2 to 20 carbon atoms which is unsubstituted or substituted by functional groups, aryl, alkyl, aryloxy, alkyloxy, halogen, heteroatoms and/or heterocycles,

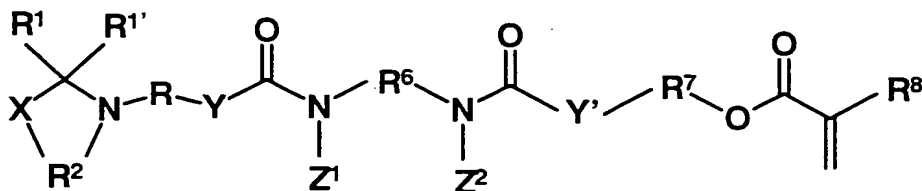
R<sup>1</sup>, and R<sup>1'</sup> independently are each hydrogen, C<sub>1</sub>-C<sub>18</sub> alkyl, C<sub>2</sub>-C<sub>18</sub> alkyl which is uninterrupted or interrupted by one or more oxygen and/or sulfur atoms and/or by one or more substituted or unsubstituted imino groups, or are each C<sub>6</sub>-C<sub>12</sub> aryl, C<sub>5</sub>-C<sub>12</sub> cycloalkyl or a five- or six-membered heterocycle containing oxygen, nitrogen and/or sulfur atoms, it being possible for each of said radicals to be substituted by functional groups, aryl, alkyl, aryloxy, alkyloxy, halogen, heteroatoms and/or heterocycles,

X is oxygen (-O-), unsubstituted or monosubstituted nitrogen (-N(R<sup>4</sup>)-) or >N-NR<sup>4</sup>R<sup>5</sup>,

Y is oxygen (-O-), unsubstituted nitrogen (-N(H)-) or sulfur (-S-), and

R<sup>4</sup> and R<sup>5</sup> independently are each hydrogen or C<sub>1</sub>-C<sub>4</sub> alkyl.

8. The polyurethane according to any one of the preceding claims, comprising at least one of the following compounds of the formula (II).



or higher homologs thereof,

where

R, R<sup>1</sup>, R<sup>1'</sup>, R<sup>2</sup>, X and Y are as defined in claim 7,

5 Y' can be as defined for Y but can also be different,

R<sup>6</sup> and R<sup>7</sup> each independently are a divalent organic aliphatic, cycloaliphatic or aromatic radical comprising 2 to 20 carbon atoms and unsubstituted or substituted by functional groups, aryl, alkyl, aryloxy, alkyloxy, halogen, heteroatoms and/or heterocycles,

15 R<sup>8</sup> is hydrogen, methyl, ethyl or hydroxymethyl, and

Z<sup>1</sup> and Z<sup>2</sup> can be identical or different and independently of one another are hydrogen or  $-(CO)-NH-R^6-NCO$ .

20 9. A polyurethane dispersion comprising,

(A) a polyurethane according to any one of the preceding claims and including synthesis component d) and

25 (C) if desired, one or more photochemically and/or thermally activable initiators, and

(D) if desired, further, typical coatings additives.

30 10. A coating composition comprising

either at least one polyurethane dispersion according to claim 9

35 or at least one polyurethane (A) according to any one of claims 1 to 8 and also

(C) if desired, one or more photochemically and/or thermally activable initiators, and

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(D) if desired, further, typical coatings additives.

11. A method of coating a substrate, which comprises radiation  
45 curing a substrate coated with a material according to any one of the preceding claims and subjecting it to thermal

treatment at temperatures up to 160 °C.

12. The method according to claim 11, wherein the thermal treatment takes place between 60 and 160 °C.

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13. The method according to either of claims 11 and 12, wherein the radiation curing is conducted under inert gas.

14. The use of a polyurethane according to any one of claims 1 to 8 in a radiation-curable coating composition.

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15. The use of a material according to any one of claims 1 to 10 to coat wood, metal or plastic.

- 15 16. The use of a material according to any one of claims 1 to 10 in an automotive paint or automotive topcoat material.

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